Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment	)	WT Docket No. 17-79
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COMMENTS OF THE
CONSUMER TECHNOLOGY ASSOCIATION

The Consumer Technology Association ("CTA")[1] respectfully submits these comments in response to the above-captioned *Notice of Proposed Rulemaking and Notice of Inquiry*, which examines the regulatory impediments to wireless network infrastructure and deployment and explores how to remove or reduce such impediments.[2] These issues are critical to the success of the internet of today and of the future, including the Internet of Things ("IoT"). For the future internet to flourish, providers must be able to deploy wireless infrastructure readily to replace and supplement wired links to homes and other end points with wireless links, as well as to add needed capacity to existing wireless networks.

[1] The Consumer Technology Association ("CTA")™ is the trade association representing the $292 billion U.S. consumer technology industry, which supports more than 15 million U.S. jobs. More than 2,200 companies – 80 percent are small businesses and startups; others are among the world's best known brands – enjoy the benefits of CTA membership including policy advocacy, market research, technical education, industry promotion, standards development and the fostering of business and strategic relationships. CTA also owns and produces CES® – the world's gathering place for all who thrive on the business of consumer technologies. Profits from CES are reinvested into CTA's industry services.

[2] Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, *Notice of Proposed Rulemaking and Notice of Inquiry*, 32 FCC Rcd 3330 (2017) ("*Notice*").

This *Notice* is a significant next step towards identifying and addressing barriers to deploying the infrastructure essential for the future internet.[3] Just as the future internet will depend on a mixture of unlicensed and licensed spectrum across multiple bands, so too will it depend on the availability of rich and diverse infrastructure. Indeed, without sound infrastructure policies, making spectrum available for commercial use is a necessary, but not sufficient, ingredient for the ubiquitous connectivity that will fuel the future internet, including the many wireless sensors and connected devices of the IoT. Common-sense infrastructure policies and procedures will benefit consumers, businesses, state and local governments, *and* boost innovation. The Commission should take action to reduce regulatory barriers and encourage states and localities to adopt smart and light-touch regulatory policies and procedures that will streamline and promote infrastructure siting – and take more direct action if necessary.

I. VASTLY EXPANDED AND DENSIFIED WIRELESS INFRASTRUCTURE IS CRITICAL FOR THE FUTURE INTERNET

Consumer demand for higher speeds and for more data-intensive applications that require reliable connectivity will continue unabated for the foreseeable future.[4] The top trend at CES 2017 was that "[i]f a device can be connected and made smarter – it will be – whether inside the home, in the enterprise, from a remote location or in relationship to the connected car and self-driving cars."[5] Indeed, the number of IP-connected devices per capita – already 2.3 networked

[3] *See generally* Comments of CTA, WT Docket No. 16-421 (Mar. 8. 2017) ("CTA Small Cell Comments").

[4] *See, e.g., id.*; CTA, *Internet of Things: A Framework for the Next Administration* 6, Nov. 2016, ("CTA IoT Paper"), http://www.cta.tech/cta/media/policyImages/policyPDFs/CTA-Internet-of-Things-A-Framework-for-the-Next-Administration.pdf.

[5] Susan Schreiner, *10 Mobile Connectivity Trends*, CTA i3 (June 11, 2017), https://cta.tech/News/i3/Articles/2017/March-April/10-Mobile-Connectivity-Trends.aspx ("Schreiner, *10 Mobile Connectivity Trends*").

devices per capita in 2016 – will grow to 3.5 networked devices per capita in 2021 globally.[6] Many of these devices, sensors, and monitors have the potential to change the lives of individuals who have been unserved or underserved in the past by, for example, allowing seniors to stay in their homes longer and enabling individuals with disabilities to live more independent lives.[7] Even as augmented reality ("AR"), virtual reality ("VR"), artificial intelligence, and machine learning displays and networks are emerging,[8] challenges to making these technologies truly mobile will likely last for another ten years.[9] Therefore, a potential solution for VR and AR and other technologies is to "harness the power of cloud computing and alleviate the strain placed on end user devices by offloading computationally-intensive tasks to powerful remote servers."[10] However, current wireless infrastructure does not support the necessary network bandwidth and latency requirements of these new technologies.[11]

Meeting the demands of emerging technologies and connecting those on the other side of the digital divide will require more cost-efficient, appropriately-sized, and rapidly deployed

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[6] *Cisco Virtual Networking Index: Forecast and Methodology, 2016-2021 White Paper*, June 6, 2017, http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html.

[7] *See, e.g.*, Comments of CTA, GN Docket No. 16-46, at 2-4 (May 24, 2017) (describing several broadband-enabled health and wellness technologies demonstrated at CES 2017 and trends in adoption of such technologies).

[8] Schreiner, *10 Mobile Connectivity Trends.*

[9] Alisha Seam et al., Enabling Mobile Augmented and Virtual Reality with 5G Networks, AT&T Foundry White Paper 2, Jan. 2017, http://about.att.com/content/dam/innovationblogdocs/Enabling%20Mobile%20Augmented%20and%20Virtual%20Reality%20with%205G%20Networks.pdf.

[10] *Id.*

[11] *Id.*; *Matthias Mccoy-Thompson, Virtual Reality and the 5G Bottleneck: Why Next-Gen, Wireless Standards are Essential for Mobile VR*, Medium (Mar. 7, 2016), https://medium.com/the-metaverse-muse/virtual-reality-and-the-5g-bottleneck-feac8e8f2794 (noting that "VR is a Resource Hog" and that "for mobile VR to take off, we need a mobile network that can handle the massive increase in data").

infrastructure. The wireless and consumer technology industries are developing standards for Fifth Generation ("5G") wireless services and have started rolling out the first 5G products and services in a race to meet consumer demand. Those 5G services will use high frequency bands (particularly in those places where traffic demands will be highest), in addition to the new, lower band mobile spectrum now starting to enter the pipeline.[12] The suboptimal propagation characteristics of the high bands discussed in the *Spectrum Frontiers* proceeding dictate densified infrastructure deployment.[13] In addition, in urban and indoors environments, the millions of low-power monitors, sensors, and other devices that will comprise the IoT will depend on close-by wireless facilities to connect them to core networks and to the internet.[14]

II. NOW IS THE TIME FOR THE COMMISSION TO IDENTIFY AND REMOVE, WHERE APPROPRIATE, BARRIERS TO RAPID, STREAMLINED INFRASTRUCTURE DEPLOYMENT

The *Notice* correctly observes that "realizing the potential benefits of next-generation broadband will depend … on having an updated regulatory framework that promotes and

[12] *See, e.g.*, CTA Small Cell Comments at 4; CTA Press Release, *CTA Applauds the FCC on Close of TV Broadcast Spectrum Incentive Auction* (Apr. 13, 2017), https://cta.tech/News/Press-Releases/2017/April/CTA-Applauds-the-FCC-on-Close-of-TV-Broadcast-Spec.aspx (quoting CTA President and CEO Gary Shapiro observing that "the FCC completed an important step in its mission to release more spectrum for wireless broadband – a critical resource for the wireless industry as it continues to find new and innovative ways to meet consumers' growing demand for anytime, anywhere connectivity").

[13] *See, e.g.*, *Notice* ¶ 32 ("providing end users with higher quality connections, more bandwidth and lower latency will require significant densification of DAS and small cell facilities"); Comments of the Consumer Technology Association f/k/a Consumer Electronics Association at 5, GN Docket No. 14-177 (Sept. 2, 2016); Mobilitie, LLC Petition for Declaratory Ruling, *Promoting Broadband for All Americans by Prohibiting Excessive Charges for Access to Public Rights of Way* at 4 (Nov. 15, 2016) (observing that small cells and new spectrum bands will "require multiple sites").

[14] *See, e.g.*, Stephane Daeuble, *Small cells bring IoT in from the cold*, Nokia Blog (Feb. 7, 2017), https://blog.networks.nokia.com/small-cells/2017/02/07/small-cells-bring-iot-cold.

facilitates next generation network infrastructure facility deployment."[15] Indeed, as the Commission makes more unlicensed and licensed spectrum available to meet the growing demand for new products and services, the Commission should also adopt policies to streamline deployment of the infrastructure needed to put that spectrum to use.

Overly broad, complex, or prescriptive rules for siting and deploying infrastructure impose costs and burdens that throttle innovation and keep beneficial new products from coming to market. Such regulatory red tape also inhibits innovations that would promote safety, among other benefits.[16] The patchwork of literally thousands of federal, state, and local permitting restrictions and requirements particularly burden smaller companies, which cannot afford the delay and expense of navigating the nuances of each regulatory regime – for infrastructure, this often means on a municipality by municipality basis.[17] Within its authority, the Commission must take affirmative actions to ensure state and local governments are not acting to "prohibit or have the effect of prohibiting" new infrastructure.[18] Streamlined permitting and siting processes and rejecting inappropriate and cumbersome processes designed for traditional macrocells when considering small cells are crucial for today's and tomorrow's wireless services. Similarly, Commission regulatory underbrush that may inhibit modern infrastructure deployments of technologies like small cells are worthy of reexamination. Cutting unnecessary regulatory burdens supports innovation and benefits consumers.

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[15] *Notice* ¶ 1.

[16] *See* Gary Shapiro, *Congress: Want America to Innovate? We need smart regulation*, Medium (Feb. 1, 2017), https://medium.com/@GaryShapiro/congress-want-america-to-innovate-we-need-smart-regulation-4b760e57c91e ("Extensive and overly broad rules intended to increase user safety can inadvertently throttle innovation and halt new products from coming to market.").

[17] *See id.* ("When the agencies attempt to pre-empt problems by regulating ahead, they simultaneously choke innovation and favor incumbent companies with old technologies.").

[18] *See* 47 U.S.C. § 332; 47 U.S.C. § 253.

III. CONCLUSION

CTA's members are working diligently to help meet the ever-increasing consumer demand for high-speed wireless connectivity for the future internet of IoT and 5G services. Streamlined infrastructure policies that support public and private work to develop and deploy infrastructure hold promise as a part of the solution to meeting that demand, and CTA looks forward to working with the FCC, states, and localities to develop those policies to benefit from the opportunities presented by all types of wireless infrastructure.

Respectfully submitted,

CONSUMER TECHNOLOGY ASSOCIATION

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